PCV63

INPATIENT BURDEN OF ILLNESS AND PREDICTORS OF CHARGES OR LENGTHS OF STAY AMONG ADULT HEART TRANSPLANTATION PATIENTS

Olvey EL, Skrepnek GH
University of Arizona, Tucson, AZ, USA

OBJECTIVES: To assess the role of hospital, patient, payer and clinical factors on inpatient hospital lengths of stay (LOS) and total charges in adults undergoing heart transplantation. **METHODS:** This analysis utilized the nationally representative inpatient hospital discharge records from the Agency for Healthcare Research and Quality (AHRQ) Healthcare Cost and Utilization Project (H-CUP) Nationwide Inpatient Sample (NIS) from 2002 to 2005. All patients above 18 years of age receiving a heart transplantation procedure were selected for inclusion. Specific variables of interest included patient demographics (e.g., age, sex, race, income), hospital characteristics (e.g., rural/urban), payer (e.g., Medicare, commercial, uninsured), procedures, diagnoses, case-mix risk adjustment (e.g., all patient refined DRG (APR-DRG)), and inpatient mortality. Outcomes analyzed were LOS and total charges. Gamma and negative binomial generalized linear models with log-links were employed with an a priori alpha of 0.05 for statistical significance. Human subjects approval was obtained from the University of Arizona. **RESULTS:** Overall, 5911 patients underwent a heart transplantation between 2002–2005, with 74.1% of these patients being males. Mean charges were $332,617 ± $212,403. Average LOS was 41.76 ± 50.16 days. Inpatient mortality was 5.4%. Regression analyses indicated significant associations between charges and number of procedures (Incidence Rate Ratio (IRR) = 1.074, 95% CI = 1.059–1.089), inpatient mortality (IRR = 1.274, 95% CI = 1.094–1.483), APR-DRG (IRR = 1.126, 95% CI = 1.061–1.195), African-American race (IRR = 0.871, 95% CI = 0.783–0.969), and hospital location (IRR small metropolitan = 0.799, 95% CI = 0.731–0.874, IRR micropolitan/rural = 0.741, 95% CI = 0.661–0.831). These analyses also indicated significant associations between LOS and number of diagnoses (IRR = 0.979, 95% CI = 0.960–0.997), number of procedures (IRR = 1.104, 95% CI = 1.082–1.126), APR-DRG (IRR = 1.291, 95% CI = 1.136–1.467), and hospital location (IRR micropolitan/rural = 0.779, 95% CI = 0.635–0.958). **CONCLUSIONS:** This investigation of 5911 adult heart transplant patients suggests that several factors are significantly associated with LOS and charges. Continued research, particularly subgroup analyses and long term follow-up, are warranted.

PCV64

ECONOMIC BURDEN OF ATHEROSCLEROSIS AMONG PATIENTS WITH TYPE-2 DIABETES MELLITUS

Ohsfeldt RL[1], Gandhi SK[2], Fox KM[3], Bullano M[2]
[1]Texas A & M Health Science Center, College Station, TX, USA, [2]AstraZeneca, LP, Wilmington, DE, USA, [3]University of Maryland School of Medicine, Monkton, MD, USA

OBJECTIVES: The present study estimated cardiovascular event rates and direct medical costs attributable to the medical management of type-2 diabetes mellitus (T2DM) patients with diagnosed atherosclerosis. **METHODS:** Using national administrative claims data, the number of cardiovascular (CV) events (i.e., myocardial infarction, stroke, revascularization) and direct costs of care were quantified among patients >17 years of age with T2DM and, with or without an ICD-9 diagnostic code for coronary or cerebral atherosclerosis between January 1, 2002 and December 31, 2004. Patients with a CV event in the 12 months prior to index date were excluded. A comparison cohort (n = 14,188) with T2DM and no atherosclerosis diagnosis was matched on age, gender, geography, and Charlson comorbidity score to patients with diagnosed atherosclerosis and T2DM (n = 10,842). Differences between patient groups were tested for CV event rates per 1000 patients and monthly costs for 12 months pre- and post-diagnosis. **RESULTS:** The cohorts included 55% men with a mean age of 60.5 years (30% were > = 65 years of age). Patients with atherosclerosis and T2DM had 239 CV events/1000 patients and the comparison cohort with T2DM had 39.8/1000 patients at 12 months post-index date, $p < 0.01$. Mean total cost of care for patients with atherosclerosis and T2DM was $10,039 for the 12 months before and $18,371 for 12 months post-diagnosis, an 83% increase. One-year post-index total costs were significantly higher among atherosclerosis and T2DM patients than the comparison cohort ($18,371 vs. $5,765, $p < 0.01$). The attributable cost (difference between atherosclerosis pre- and post costs and comparison pre- and post costs) for atherosclerosis was $627 per month ($7524 for 1 year). **CONCLUSIONS:** Patients with diagnosed atherosclerosis and T2DM have substantial medical and economic burden attributable to their atherosclerosis. Utilizing administrative data, health plans may identify these patients for more effective management and treatment of their underlying atherosclerosis to reduce this burden.

PCV65

MANAGEMENT OF PRIMARY ATRIAL FIBRILLATION (AF): PATIENT CHARACTERISTICS AND HOSPITAL CARE SETTING

Spalding JR[1], Exuzides A[2], Colby C[2], Neil N[2], Noe L[2]
[1]Astellas Pharma US, Inc., Deerfield, IL, USA, [2]ICON Clinical Research, San Francisco, CA, USA

OBJECTIVES: To describe and differentiate characteristics and costs of patients admitted for treatment of primary AF in hospital emergency department (ED) and inpatient settings. **METHODS:** Analysis of 2004–2005 discharges from the Premier Perspective database, including patients with primary AF diagnoses and evidence of initial therapy with electric conversion (EC) or an IV antiarrhythmic (amiodarone, ibutilide or procainamide). **RESULTS:** Of 11108 discharges evaluated, 34% were admitted directly as inpatients and 66% presented to the ED. Of these, 14% were treated and released from the ED; the remaining 86% were transferred to the inpatient setting. ED patients were significantly ($p < 0.0001$) younger with fewer comorbidities ($p < 0.0001$) than either transfer or direct admit patients. Initial conversion therapy for the vast majority (79%) of ED treated patients was either EC or ibutilide, both of which are fast acting. Only 10% of ED patients received initial amiodarone. In contrast, 52% (42%) of transfer (direct) patients were treated with initial amiodarone and 39% (54%) received initial EC or ibutilide. About 4% of ED patients required a second conversion attempt compared to 13% of inpatient discharges. Median LOS was 4 days for both direct admit and transfer patients. Average costs were highest among direct admit ($9229) vs. transfer ($8811) and ED ($1209) patients ($p < 0.0001$). **CONCLUSIONS:** Health care resource utilization is high for patients presenting with acute AF and varies significantly by hospital care setting. Adjusted average costs of treating primary AF in the inpatient setting are significantly higher than the costs of treatment in the ED. Patient characteristics and selected method of cardioversion may impact both choice of care setting and costs. In clinically appropriate patients, the availability of fast-acting conversion therapies suitable for use in the ED may obviate the need for inpatient admission and, thus, reduce the health care burden of treating AF in the US.

PCV66

INPATIENT RESOURCE USE AMONG PATIENTS TREATED FOR PRIMARY ATRIAL FIBRILLATION (AF): ROLE OF CLINICAL FACTORS AND CHOICE OF INITIAL CONVERSION THERAPY

Spalding J[1], Exuzides A[2], Colby C[2], Neil N[2], Noe L[2]
[1]Astellas Pharma US, Inc., Deerfield, IL, USA, [2]ICON Clinical Research, San Francisco, CA, USA

OBJECTIVES: Prior analyses showed that AF patients treated with initial IV amiodarone had significantly higher adjusted average resource use compared with other therapies. This analysis assesses whether these results can be explained by presence of classic AF covariate (AFC) diagnoses (heart failure; peripheral vascular disease). **METHODS:** We used 2004–05 discharges from the Premier Perspective database, including patients with primary AF diagnoses and evidence of initial therapy with electric conversion (EC) or an IV antiarrhythmic [amiodarone (AM), ibutilide (IB) or procainamide (PR)]. Patients were classified by AFC status. Inpatient costs and LOS were adjusted for clinical, demographic and hospital factors. **RESULTS:** We stratified 10048 discharges into groups with AFC (28%) and without. Results showed that patients with AFC had higher costs ($p < .0001$) and longer LOS overall ($p < .0001$) and were 34% more likely to be treated with initial AM ($p < .0001$) vs. patients without, thus explaining some of the differences observed earlier. However, resource use with initial AM remained significantly higher than with any other initial therapy regardless of patients' AFC status. Among those without AFC, adjusted average costs were $440–$1988 higher ($p < .0001$) and LOS was 0.4–1 day longer ($p < .0001$) with initial AM than with any other initial therapy. Among patients with AFC, initial AM was $1602–$3266 higher ($p < .0001$) and LOS was 1.1–1.5 days longer ($p < .005$) than with any other initial therapy. **CONCLUSIONS:** There are significant inpatient cost and LOS differences among AF patients depending on initial therapy and presence of AFC. Patients with AFC had higher adjusted average costs and LOS than those without and were more likely to be treated with initial AM. However, adjusted average costs and LOS were highest among patients treated with initial AM regardless of AFC status. Further research should explore whether factors such as time to conversion affect resource use among these patients.

PCV67

COST AND OUTCOMES AFTER FIRST ACUTE MYOCARDIAL INFARCTION: STUDY ON 12049 INDIVIDUALS USING ADMINISTRATIVE DATABASES

Mantovani LG[1], Fornari C[2], Madotto F[2], Riva M[2], Chiodini V[2], Ferrario M[3], Merlino L[4], Zocchetti C[4], Cesana G[2]
[1]University Federico II, Naples, Italy, [2]University of Milano-Bicocca, Monza, Lombardia, Italy, [3]University of Insubria, Varese, Lombardia, Italy, [4]Lombardy Region, Milano, Italy

OBJECTIVES: To estimate the economic burden of AMI incident events registered in 2003 in Lombardy, the most inhabited region of Italy. **METHODS:** Data were extracted from health care administrative databases of Lombardy Region, which covers a population of about 9.2 million members. Administrative Healthcare databases related to eligibility criteria, hospital admissions (HA), pharmaceutical and outpatient claims of Lombardy Region citizens have been organized, using probabilistic record linkage, in a data warehouse, called DENALI, to facilitate processing and analysis. Using DENALI, we conducted a longitudinal and naturalistic study on the burden of incident AMI in the perspective of the regional health service (RHS). We identified all individuals with a HA for incident AMI (ICD-9-CM codes 410.xx, excluding codes 410.x2) during the year 2003 and followed them up to dec.31st 2005, death or transfer. We used charges to the RHS to quantify the economic burden of AMI to the RHS. Outcomes were quantified in term of morbidity (sequelae) and mortality. We report on cost (overall and monthly cost-per-patient) and mortality. **RESULTS:** During 2003, 12,049 individuals (64% males, mean age 70 +/–13 y.o.) had a HA for incident AMI. A total of 3380 (28%) subjects died during an average follow-up period of 23 months. The total cost for all patients during the first year was €163 million, corresponding to the 1% of the health care budget of

Lombardy. The monthly cost in the first year was €1249 per person (77% attributable to HAs, 15% to pharmaceuticals and 8% to outpatient claims), decreasing to €309 in the following years (54% HAs, 31% pharmaceuticals, 16% outpatient). **CONCLUSIONS:** This large study on the burden of AMI shows the epidemiologic, economic and clinical impact of the disease. DENALI, with its large population followed over time is a powerful and dynamic tool for epidemiologic and health economic research.

PCV68

ADMINISTRATIVE CLAIMS IN A LARGE BRAZILIAN NATIONWIDE DATABASE: A DESCRIPTIVE ANALYSIS OF THE DIRECT MEDICAL COSTS OF CORONARY ARTERY BYPASS GRAFTING (CABG) AMONG DIFFERENT REGIONS IN A CONTINENTAL-SIZE COUNTRY

Fonseca MCM[1], Abicalaffe CL[2], Muranaka AH[3], Araujo GT[1]

[1]UNIFESP – Federal University of Sao Paulo, Sao Paulo, Sao Paulo, Brazil, [2]Impacto Tecnologias Gerenciais em Saude, Curitiba, Parana, Brazil, [3]Universidade Federal de São Paulo, Sao Paulo, SP, Brazil

OBJECTIVES: Acute coronary syndromes (ACS) are life-threatening disorders requiring intensive medical management or invasive cardiovascular procedures. CABG is an important therapeutic procedure among these patients. In Brazil almost 21,000 CABG are performed in public hospitals costing the government R$7379.49 each in average. The aim of this study is to determine the direct medical costs of CABG among different Brazilian regions in the private setting. **METHODS:** Retrospective single-cohort study analyzed administrative claims data for patients with ACS submitted to CABG in 2007–2008. From a nationwide database with 1,801,344 people all the patients with ACS submitted to CABG were selected. The patients were split according to the Brazilian geographical region where the procedure was performed. Student T test was used to compare the costs among three different regions. **RESULTS:** We identified 263 patients with ACS submitted to CABG. 67% of the procedures were performed in Southeast (SE) region, 25% in Middle West (MW) and 8% in the south region. The average ± SD, quartile 25%, median and 75% of the CABG cost of whole sample were R$15,849.72 ± R$7,355.69, R$12,153.84, R$14,605.45 and R$18,735.46, respectively. The same parameters for the SE, MW and S regions were, respectively R$15,721.25 ± R$8,309.74, R$11,545.23, R$14,398.47 and R$18,657.87; R$16,744.15 ± R$4,212.57, R$13,340.56, R$15,688.26 and R$19,325.96 and R$14,035.03 ± R$6,272.96, R$9,145.53, R$14,163.88 and R$17,103.31. There was no statistical difference among the different regions of Brazil of total CABG cost. There was no statistical difference among the different regions and the total sample average. **CONCLUSIONS:** The CABG average cost we found represent the average Brazilian private setting health cost independent of the region studied. The average total CABG cost in the private setting is at least the double in relation to the average total CABG cost in the public setting.

PCV69

A CONCEPTUAL ANALYSIS OF THE COSTS OF CARE FOR A "MAJOR BLEED" IN STUDIES OF ANTIPLATELET AND ANTITHROMBOTIC THERAPIES

Harshaw Q[1], Frye C[1], Hauch O[2]

[1]EPI-Q, Inc., Oak Brook, IL, USA, [2]AstraZeneca, LP, Wilmington, DE, USA

OBJECTIVES: Antiplatelet and antithrombotic therapies have long been the focus of extensive clinical and economic investigations. In many of these studies, the primary endpoint of analysis was the incidence of "major bleeding." Unfortunately, major bleeding does not have a standard or universal definition. Major cardiovascular studies such as GUSTO, CURE, TIMI and the International Society on Thrombosis and Haemostasis (ISTH) have each established definitions that result in vastly different outcomes. Additionally, none of the common definitions were designed for patients undergoing surgery as part of their care. Analyses that compare outcomes from multiple trials must carefully examine the definitions used. **METHODS:** We analyzed the effect of applying 6 major bleeding definitions on the incidence and costs of care for acute coronary syndrome (ACS) patients undergoing coronary artery bypass graft surgery (CABG) in their index hospitalization in a previously developed database of ACS patients from 14 health systems across the United States. **RESULTS:** Our comparison found that application of the different definitions could result in a large variance in the primary outcome of "major bleeding" with equal impact on the comparisons for the cost of care. The incidence of major bleeding varied by as much as 50% as did the cost of treatment. The data review included ACS patients who underwent CABG between January 2005 and December 2006. **CONCLUSIONS:** Comparing the incidence, impact and costs of treating major bleeding between various clinical trials requires a careful assessment of the definitions used. Development of a single standard definition of "major bleeding" for use in clinical and observational trials is recommended.

PCV71

COST-EFFECTIVENESS OF EZETIMIBE/SIMVASTATIN VERSUS SIMVASTATIN: WILL THE INCREASED RISK OF CANCER MAKE EZETIMIBE/SIMVASTATIN AN INAPPROPRIATE TREATMENT CHOICE?

Wang CC, Biddle AK, Farley JF

University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

OBJECTIVES: Although ezetimbe/simvastatin (10/40 mg/day) combination therapy may have a superior cholesterol-lowering profile and be more cost effective than statin monotherapy, recent data suggest an increased risk of cancer. We estimate the cost-effectiveness of ezetimibe/simvastatin vs. simvastatin (40 mg/day) monotherapy, evaluating the effect of this risk. **METHODS:** A Markov model, employing a 1-year cycle, was employed to estimate the incremental cost, outcomes, and cost-effectiveness ratio (ICER) over a 5-year time horizon. Efficacy data were obtained from the Simvastatin and Ezetimibe in Aortic Stenosis (SEAS) study, the Scandinavian Simvastatin Survival Study, and the Heart Protection Study. Costs were estimated from fee schedules, diagnosis-related groups, and average wholesale prices. Utility weights were obtained from the peer-reviewed literature. All costs and outcomes after the first year were discounted 3% annually in the base-case. Deterministic and probabilistic sensitivity analyses were conducted to evaluate the effect of parameter uncertainty and assumptions on the model results. A cost-effectiveness acceptability curve displays the probability that ezetimibe/simvastatin is cost effective. **RESULTS:** Ezetimibe/simvastatin was dominant (i.e., cost less, resulted in better outcomes) in the base-case scenario. For a 1 million-patient cohort, ezetimibe/simvastatin would cost $1,674,715,503 less than monotherapy and would result in 15,906 additional quality-adjusted life-years (QALYs). One-way sensitivity analyses indicate that higher incidence of cancer, lower monotherapy costs, and higher risk of myocardial infarction (MI) reduce the cost-effectiveness of ezetimibe/simvastatin substantially. According to probabilistic analyses, ezetimibe/simvastatin is cost-effective at $50,000/QALY only 36.7% of the time; even at a willingness-to-pay of $100,000/QALY, ezetimibe/simvastatin is cost effective less than 50% of the time. **CONCLUSIONS:** Although our study suggests that simvastatin/ezetemibe treatment is cost effective, policy makers should interpret these results in light of possible uncertainty surrounding the incidence of cancer, incidence of myocardial infarction, and the true cost of simvastatin treatment following generic approval.

PCV72

COST-EFFECTIVENESS ANALYSIS OF ADD-ON ALISKIREN TO LOSARTAN TREATMENT FOR PATIENTS WITH TYPE 2 DIABETES, HYPERTENSION AND NEPHROPATHY IN THE CZECH PATIENTS FROM PAYOR PERSPECTIVE

Kutscherauer P[1], Kodym R[2], Bartaskova D[3]

[1]Novartis Pharmaceuticals Corporation, Prague, Czech Republic, [2]Novartis Pharmaceuticals Corporation, Prague 3, Czech Republic, [3]Charles University, Prague, Czech Republic

OBJECTIVES: Persistent high blood pressure is one of the leading causes of microalbuminuria and progression of nephropathy in patients with type 2 diabetes. A large number of studies have shown effective reduction of microalbuminuria after antihypertensive therapy and reducing progression of nephropathy to end-stage renal disease (ESRD). In the AVOID study aliskiren once daily as an add-on therapy provide a significant additional reduction in proteinuria compared to losartan alone. The objective of this model was to evaluate a long-term cost-utility of the two strategies. **METHODS:** AVOID was a multinational, randomized, double-blind study to evaluate the possible renoprotective effect of aliskiren in the primary endpoint – the change in the urinary albumin to creatinine ratio (UACR) when added aliskiren to existing losartan and optimal antihypertensive therapy for six months in hypertensive patients with type 2 diabetes and nephropathy. However the duration of this study was short to evaluate the incidence of ESRD. The AVOID cost-effectiveness Markov model is designed to estimate progression to ESRD using the primary endpoint of AVOID – superior reduction in UACR for aliskiren versus placebo – and project associated local costs and clinical outcomes in Czech patients suffered by type 2 diabetes, hypertension and nephropathy. **RESULTS:** AVOID demonstrates that combination of aliskiren with losartan showed systematically improved effectiveness compared with losartan alone. Effectiveness was expressed as QALY gained throughout the model time horizon. The incremental cost-effectiveness (ICER) of the aliskiren treatment in the base case was below € 1027 per QALY gained and in the extended case improved with real-life cost of dialysis and renal transplantation on cost-saving therapeutical approach. **CONCLUSIONS:** Aliskiren once daily as add-on therapy to losartan is highly cost-effective option for hypertensive patients with type 2 diabetes and nephropathy.

PCV73

INCREASED PATIENT THROUGHPUT AND REDUCTION IN LABORATORY STAFF AND LABOR INTENSITY WITH THE USE OF REGADENOSON

Smalarz AM[1], Denevich S[2], Boulanger L[1], Spaulding J[3]

[1]Abt Bio-Pharma Solutions, Inc., Lexington, MA, USA, [2]Abt Associates, Inc., Lexington, MA, USA, [3]Astellas Pharma US, Inc., Deerfield, IL, USA

OBJECTIVES: Regadenoson is a vasodilating stress agent used in patients undergoing myocardial perfusion imaging (MPI) for detection of coronary artery disease. Its rapid injection administration and weight-independent dosing may result in shortened administration time versus adenosine or dipyridamole. We assessed whether the use of regadenoson results in overall MPI reduction in lab personnel time and consequentially increased patient throughput. **METHODS:** An economic model was developed comparing regadenoson versus adenosine and dipyridamole on MPI laboratory productivity and patient throughput through reduction in administration time and staff labor. We developed a pharmacologic stress agent survey (n = 19) to evaluate the laboratory personnel time and patient throughput. The results of this survey were used to populate the model. We included the administration of stress agents and managing associated adverse events for MPI. We solicited key opinion leaders including nurses, nuclear technologists and cardiologists to complete this survey in April and May of 2008. **RESULTS:** Laboratory efficiency is reliant in part upon medication characteristics (e.g. different stress agent dose, administration time, use of rapid injection vs.